UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,928	11/26/2003	Bonnie B. Sandel	102289-100	1181

27267 7590 12/10/2010

WIGGIN AND DANA LLP
ATTENTION: PATENT DOCKETING
ONE CENTURY TOWER, P.O. BOX 1832
NEW HAVEN, CT 06508-1832

EXAMINER	
FRAZIER, BARBARA S	
ART UNIT	PAPER NUMBER
1611	
MAIL DATE	DELIVERY MODE
12/10/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte BONNIE B. SANDEL,
RICHARD H. DUMAS, and PATRICIA A. TURLEY

Appeal 2010-005245
Application 10/722,928
Technology Center 1600

Before LORA M.GREEN, MELANIE L. McCOLLUM, and JEFFREY N. FREDMAN, *Administrative Patent Judges*.

McCOLLUM, *Administrative Patent Judge*.

DECISION ON APPEAL[1]

This is an appeal under 35 U.S.C. § 134 involving claims to an antimicrobial incorporation method. The Examiner has rejected the claims

---

[1] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the "MAIL DATE" (paper delivery mode) or the "NOTIFICATION DATE" (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

on appeal as obvious. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

STATEMENT OF THE CASE

The Specification discloses a "method for providing antimicrobial protection to extruded or molded plastic structures" (Spec. 1). The Specification states that the antimicrobial protection "takes advantage of the fact that plastic-forming compositions, and plastic products typically contain metals that will react with, bind, or similarly chelate with water-soluble biocides" (*id.* at 12). The Specification also states that the "metal is sometimes incorporated into the plastics-forming composition . . . by means of a functional additive, such as a lubricant" (*id.*). In addition, the Specification discloses:

> Typical metals include calcium, zinc, iron, copper, silver, titanium, manganese, and combinations thereof. These metals are typically present in or on the surface of the plastic as metal salts, such as stearates, laurates, borates, carbonates, silicates, chlorides, sulfates and combinations thereof. . . . Preferred metals are zinc and calcium, and illustrative salts include zinc stearate. . . .

(*Id.* at 12-13.)

Claims 1-6, 8-15, and 33 are on appeal (App. Br. 4).[2] The claims have not been argued separately and therefore stand or fall together. *See* 37 C.F.R. § 41.37(c)(1)(vii).

[2] Claims 7 and 16-32 are also pending but have been withdrawn from consideration by the Examiner (App. Br. 4).

We will focus on claim 1, which reads as follows:

1. A process for incorporating a metal salt of an antimicrobial onto an outer surface of, or into a porous inner portion of, an extruded or molded plastic product which comprises the steps of:

(a) extruding or molding a metal-containing plastic-forming composition in an extruder or a mold at an elevated temperature to provide a metal-containing extruded or molded product,

(b) contacting the extruded or molded product from step (a) with an aqueous solution of a water-soluble biocide in order to cause the water soluble biocide to react or chelate with at least a portion of the metal on an outer surface, or in a porous inner portion, of the warm extruded or molded product, thereby forming an antimicrobially protected plastic product having a water-insoluble metal salt of a biocide on the surface, and/or in the porous inner portion, thereof.

Claims 1-6, 8-15, and 33 stand rejected under 35 U.S.C. § 103(a) as obvious over Laver,[3] Dawson-Andoh,[4] and Lyon[5] (Ans. 3).

The Examiner relies on Laver for teaching

> an extruded synthetic wood composition, including a process for the production of a composite material comprising the steps of combining cellulosic material with a sufficient amount of thermoplastic material to form a combined product, and extruding the combined product under sufficient conditions to blend the combined product together into a homogenous mixture.

(*Id.* at 4.) The Examiner finds that the "composite also contains a lubricant such as zinc stearate" (*id.*).

---

[3] Laver, US 5,516,472, May 14, 1996.
[4] Dawson-Andoh et al., *Do Fungi Colonize and Discolor Rigid PVC-Wood Flour Composite Lumber?*, Vinyltec 2003 Conference Proceedings (Abstract only).
[5] Lyon et al., US 6,042,877, Mar. 28, 2000.

The Examiner relies on Dawson-Andoh for teaching "that PVC-wood flour composite materials become colonized and discolored upon exposure to fungi" (*id.*). Based on this teaching, the Examiner concludes that "one skilled in the art would recognize the need to apply a biocidal agent to the product of Laver" (*id.*).

The Examiner relies on Lyon for teaching "a method for the manufacture of anti-microbial articles comprising rinsing a metal-containing substrate with a potentiator, i.e., an anti-microbial agent (biocide) capable of bonding to the metal ion" (*id.* at 5). The Examiner concludes it would have been obvious "to contact the metal-containing substrate of Laver with an antimicrobial agent according to the process of Lyon" (*id.*).

ISSUE

Does the evidence support the Examiner's conclusion that it would have been obvious to contact Laver's product with Lyon's potentiator solution in order to react or chelate the potentiator with metal in Laver's product?

FINDINGS OF FACT

1. Laver discloses extruding a metal-containing plastic-forming composition to form a metal-containing product, the metal being in the form of zinc stearate (Laver, col. 2, ll. 45-59, col. 7, ll. 16-22, & col. 7, l. 46, to col. 8, l. 57).

2. Lyon discloses a method for making an anti-microbial article, "comprising: providing a substrate; forming a solution comprising a chelating polymer and a metal ion; depositing the solution on the substrate;

drying the substrate to form a coated substrate; and adding a potentiator to the coated substrate to form the antimicrobial article" (Lyon, Abstract).

3. Lyon also discloses that the "addition of the potentiator to the coated substrate is accomplished by dissolving the potentiator in water to provide a potentiator solution, treating the coated substrate with the potentiator solution, [and] drying the substrate to provide the finished anti-microbial article" (*id.*).

4. In addition, Lyon discloses that the term "'[p]otentiator' . . . refers to an anti-microbial agent capable of bonding to the metal ion" (*id.* at col. 4, ll. 57-59).

5. Lyon also discloses that suitable metal ions, such as Zn^{+2}, "are capable of forming bonds (e.g., coordinate covalent bonds) with molecules generally referred to as ligands or chelating agents" (*id.* at col. 2, ll. 54-62).

6. In addition, Lyon discloses that, "[i]n solution, the metal ion forms a complex with the chelating polymer" (*id.* at col. 3, ll. 1-2).

7. Lyon also discloses:

> It should be noted that the selection of potentiator is dependent upon the coordination chemistry of the metal ion. For example, if the bonds between the chelating polymer and the metal ion can be completely displaced by a potentiator, the durability of the complex within the chelating polymer can be compromised. Thus, the use of such a potentiator would not be desirable.

(*Id.* at col. 4, ll. 59-65.)

PRINCIPLES OF LAW

Obviousness "analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim." *KSR Int'l v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). Instead, it proper to "take account of the

inferences and creative steps that a person of ordinary skill in the art would employ." *Id.* "A person of ordinary skill is also a person of ordinary creativity, not an automaton." *Id.* at 421.

ANALYSIS

As noted by Appellants, Lyon discloses a two step process in which first a solution comprising a chelating polymer and a metal ion is deposited on a substrate and then a potentiator is added (Finding of Fact (FF) 2). However, because Laver discloses a plastic material that already contains a suitable metal (FF 1 & 5), we agree with the Examiner that it would have been obvious to add potentiator to Laver's product by the method disclosed in Lyon, that is, "by dissolving the potentiator in water to provide a potentiator solution, treating [Laver's product] with the potentiator solution, [and] drying the substrate to provide the finished anti-microbial article" (FF 3).

Appellants argue, however, that Lyon "exemplifies that not only is a 'chelating polymer – metal ion – potentiator' complex formed, but also it is this complex that confers antimicrobial activity to the finished product" (App. Br. 9). We are not persuaded. We agree that Lyon exemplifies the formation of a chelating polymer – metal ion – potentiator complex (FF 4-7). However, we do not find any suggestion that the chelating polymer is necessary for the antimicrobial activity. Although we agree that Lyon teaches that the chelating polymer provides durability (FF 7), we do not find any suggestion that the metal is insufficiently incorporated into Laver's product to provide a reasonably durable complex.

Appellants also argue:

> there is no reasonable expectation of success by treating the extruded product disclosed in Laver with the potentiator disclosed in Lyon et al. because Laver does not disclose or suggest that any zinc stearate, which is used in the mixture as a lubricant to make extruded product, is available in the formed product to chelate or react with the potentiator disclosed in Lyon et al.

(Reply Br. 2.) We are not persuaded. Although we agree that Laver does not disclose or suggest whether zinc would be available to chelate or react with Lyon's potentiator, given the fact that Lyon, like Laver, applied the metal in a polymer composition (FF 2), we agree with the Examiner that there would have been a reasonable expectation that at least some zinc would be available.

In addition, Appellants argue that, "since zinc stearate is a lubricant, it is counterintuitive to use it as an anchor to immobilize any potentiator" (Reply Br. 3). However, Appellants have not provided sufficient basis for this statement.

CONCLUSION

The evidence supports the Examiner's conclusion that it would have been obvious to contact Laver's product with Lyon's potentiator solution in order to react or chelate the potentiator with metal in Laver's product. We therefore affirm the obviousness rejection.

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

alw

WIGGIN AND DANA LLP
ATTENTION: PATENT DOCKETING
ONE CENTURY TOWER, P.O. BOX 1832
NEW HAVEN, CT 06508-1832